Conserving the Department of Defense's Natural and Cultural Resources: Recent Advances, New Challenges

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Executive Summary

The Department of Defense (DoD) has adopted a far reaching and challenging conservation goal. Yet, DoD faces significant challenges in achieving this goal. DoD managers are under increasing pressure from many directions on how to use and manage these resources. Recent actions have resulted in decidedly mixed results for the future health of the natural and cultural resources on DoD lands. It will take continued progress through such initiatives as implementing the Sikes Act Improvement Amendments and continuing to fund DoD-wide conservation initiatives through the Legacy program to ensure the continued health of DoD's natural and cultural resources.

Biographical Sketch

L. Peter Boice is Director of Conservation in the Office of the Deputy Under Secretary of Defense for Environmental Security. During his twelve years with OSD, he has also served as coordinator for DoD's Chesapeake Bay program, and program manager for the Legacy Resource Management Program, and for DoD's underground storage tank, wetlands management, and environmental awards programs. The opinions expressed in this article are those of the author and should not be construed as those of the Department of Defense.

INTRODUCTION

The Department of Defense (DoD) has adopted a far reaching and challenging conservation goal: that "all DoD conservation programs shall work to guarantee continued access to our land, air, and water resources for realistic military training and testing while ensuring that the natural and cultural resources entrusted to DoD care are sustained in a healthy condition for scientific research, education, and other compatible uses by future generations." [1] Yet, DoD faces significant challenges in achieving this goal. Military mission requirements on DoD's natural and cultural resources are increasing. For example, new weapons systems, which involve heavier vehicles and longer-range weapons, can intensify damage and increase the military's need for additional and diversified areas for training, testing, and operations. And, the overall availability of training space has decreased and demands on remaining bases have increased as many units have returned from overseas and dozens of bases in the United States have closed or realigned. As a result, DoD managers are under increasing pressure from many directions on how to use and manage these resources. [2]

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Recent internal and external actions have resulted in decidedly mixed prospects for the future health of the natural and cultural resources on DoD lands. On the positive side, the passage of the Sikes Act Improvement Amendments (SAIA) promises to bring increased visibility and stability to the management of natural resources on DoD installations. [3] The continued use of the DoD Legacy Resource Management Program ("Legacy") to support military operations is demonstrating the benefits of a "mission based" approach to natural and cultural resources management.

On the other hand, the recent decision by the Army's Operations community to eliminate the Integrated Training Area Management (ITAM) program, effective in fiscal year 2000, may severely impact the Army's long-term ability to maintain and rehabilitate its training and testing lands. Continued downsizing of professional natural resource management field staff may also adversely affect DoD's long-term ability to manage its resources.

RECENT CONSERVATION ADVANCES

Sikes Act Improvement Amendments (SAIA)

The fiscal year 1998 Defense Authorization Act included substantial changes to the Sikes Act, DoD's primary land use management statute. The most significant provision of the SAIA requires DoD to "prepare and implement an integrated natural resources management plan (INRMP) for each military installation in the United States," unless determination is made "that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate." [4] Previously DoD was authorized to prepare such plans, but was under no legal mandate to prepare them. Under this new provision, the DoD Components have identified about 450 military installations that require INRMPs.

This provision provides DoD installations with some much needed stability and continuity in providing for long-term natural resources management. The completion of needs assessments and resource inventories is an essential complement to the development of the INRMPs. These inventories not only meet legal and regulatory requirements, but also provide natural resource managers with sufficient information to understand the condition and requirements of specific resources. Such information is crucial to developing recommendations for long-term land use decisions.

More specifically, the requirement to develop and implement INRMPs will encourage the sustained use of resources and facilitate the coordination of natural resources projects with military mission needs, base master planning, and other installation resource users. A fully integrated plan will be more difficult to prepare than separate plan components gathered in one document. For example, an integrated plan will require some natural resource managers to reach outside their normal comfort zone to coordinate with other potential resource users on the installation. It will also require these other users, including military trainers and base master planners, to pay greater heed to the installation natural resource managers. This increased coordination and cooperation will reduce the potential for long-term conflicts, improve on-the-ground resource management, and facilitate land use decisions on military lands.

Another potentially beneficial provision of the new SAIA is the requirement that each INRMP provide "for no net loss in the capacity of military installation lands to support the military mission of the installation." [5] This provision explicitly acknowledges that natural resources management and the military mission are inextricably bound together, and that failure to soundly manage natural resources has a greater potential to adversely impact military readiness than a similar failure to comply with any other environmental requirement.

The requirement to "afford an opportunity for the submission of public comments" [6] for all new INRMPs and changes to existing cooperative plans is also noteworthy. Again, this provision will likely result in short-term increases in the requirements on installation natural resources managers. Seeking public comment can be a difficult and time consuming task. Nevertheless, with the increased visibility of the importance of DoD's natural resources, and the continued proclivity by some individuals and groups to resolve environmental issues through legal means, it is in DoD's long-term interest to identify potential conflicts early and to attempt to resolve them amicably.

Perhaps surprisingly, the provision of the SAIA which generated the greatest amount of discussion prior to the Act's passage is unlikely to have a significant impact on DoD's natural resources program. The SAIA states that each INRMP shall reflect the "mutual agreement" of the U.S. Fish and Wildlife Service (FWS) and the appropriate State fish and wildlife agency "concerning conservation, protection, and management of fish and wildlife resources." [7] DoD believes there is significant value in obtaining input from these agencies and expects "each INRMP will be shared with these agencies for their review - not just those provisions of the INRMP that specifically address fish and wildlife conservation and management." [8] However, whereas mutual agreement is the goal with respect to the entire plan, it is required only with respect to those elements of the plan that are subject to the legal authority of the FWS and the State fish and wildlife agencies. Specifically, DoD guidance states that "Nothing in the SAIA is intended to either enlarge or diminish the existing responsibility and authority of the FWS or State fish and wildlife agencies concerning natural resources management on military lands." [9]

DoD Legacy Resource Management Program

The Legacy program has provided funds to identify, manage, restore, and protect significant biological and cultural resources on DoD lands since fiscal year 1991. [10] Legacy's early emphasis was on helping individual installations enhance their stewardship of these resources. These funds were essential to "jumpstarting" viable conservation management programs at many installations. However, with changes to DoD's budgeting guidance and the establishment of management metrics for DoD's conservation program, which now mandate funding for resource inventories and integrated management plans, the continued need for Legacy funds for these purposes has been eliminated.

The fiscal year 1997 Defense Authorization Act established additional guidance for the Legacy program which has helped focus its more recent efforts. [11] Mirroring the mission-specific language adopted by the SAIA, this amendment limits Legacy funds to efforts necessary "to meet legal requirements or support military operations." Among the activities explicitly emphasized are:

- development of ecosystem-wide land management plans
- conduct of wildlife studies that help to ensure the safety of military operations
- control of invasive species that may hinder military activities or degrade military training ranges

Through new initiatives in these and other areas, Legacy is now focusing on regional and DoD-wide efforts to improve DoD's conservation program.

Regional Ecosystem Management

One of the most significant recent innovations in DoD has been the application of an ecosystem approach to the management of its natural resources. This regional approach can provide an installation with expanded mitigation options in terms of location, cost, and practicality. It also can afford the opportunity for expedited approvals, expanded access to scientific and technical information, and more informed decision making. [12]

DoD has emphasized regional ecosystem management since 1994. [13] The Legacy program was instrumental in funding early DoD regional ecosystem management initiatives in the Mojave Desert and the San Diego Bay area. Other successful initiatives have been developed at Eglin AFB, Florida; MCB Camp Pendleton, California; and Arnold AFB, Tennessee. [14]

The Legacy program is continuing to provide seed money to promote regional ecosystem management at other DoD installations. In fiscal year 1998, new efforts were started in the Sonoran Desert, and in the Fort Huachuca, Arizona region.

The Sonoran Initiative is using expert workshops to identify landscape-scale conservation priorities. By drawing on diverse expertise from throughout the ecoregion, these workshops help ensure that the best available information is used and set in the appropriate conservation context. The initial product from this effort will be a

set of annotated maps that synthesize biological and ecological information, and illustrate the network of sites and areas of greatest importance for maintaining the Sonoran Desert's biodiversity. The maps will be generated through a series of analyses that rank heritage occurrence data from The Nature Conservancy and expert-nominated site data and amalgamate sites where appropriate into larger units. The aim of this process is to define larger areas that share common management needs and opportunities, and to ensure wide dissemination of this information to relevant personnel working conservation issues in the Sonoran. [15]

The Fort Huachuca regional project is applying the Alternative Futures Analysis and planning model developed by the Harvard University Graduate School of Design to complex and interrelated natural resource management issues both off and on the installation. Many of these challenges are related to water use, which impacts flow levels in the San Pedro River, which could potentially affect critical habitat and other valuable natural resources. Using the Harvard model, regional change will be simulated using six alternative development projections to the year 2020. Different scenarios for accommodating this development will examine the potential impacts on soils, hydrology, fire ecology, and biodiveristy. Results will provide important information for Fort Huachuca and surrounding land owners, and act as a critical planning tool to support a long-term ecosystem management approach to regional management. The results also will support cumulative impact analysis during environmental analyses, and will foster cooperative planning and management of ecosystems, water resources and biodiversity among the fort and its neighbors. The project will also serve as a prototype for potential future DoD use.

If Legacy funds are available in fiscal year 1999, DoD will continue funding both of these initiatives. In addition, provided funds are available, DoD will launch new conservation efforts in support of regional salmon management in the Seattle region; a watershed assessment of the Anacostia River (Washington, DC area); and a cooperative partnership development for a part of the Colorado Front Range.

Migratory Bird Studies to Enhance the Safety of Military Operations

One of the most successful ways in which DoD has been able to demonstrate how conservation can support the military mission is through Legacy-sponsored migratory birds studies. For example, weather radar systems are now being used to provide information on the number, direction, and altitude distribution of migrating birds. Initially, this information was used primarily to determine important migratory bird habitat on DoD lands. Now the radar information allows DoD to tailor flight training exercises to avoid bird-aircraft collisions, thereby saving lives and aircraft. A new pilot project now underway will use weather radar for real-time monitoring of bird movements in the vicinity of airfields. Researchers are using predictive models based on historic migration records and weather data to identify prime conditions and locations of major migrations. Air traffic controllers may eventually use this information as a real-time warning system to aviators in areas of high bird migrations.

Another excellent example involves the use of a satellite-based tracking system to track species of concern, such as the Swainson's hawk. For this project, hawk movements were tracked over the Orchard Training Area, Idaho, to identify potential conflicts with military mission needs. A second phase of the study tracked hawks to their wintering grounds in a remote area of Argentina. A field check of locations identified by satellite data found that recent declines were in large part due to pesticide poisoning in South America. This information proved critical to DoD in determining whether land management strategies needed to be altered to protect habitat and avoid listing of the species as threatened or endangered. Additional research is now being conducted on other soaring birds, such as the brown pelican.

The Control of Invasive Species

Ecosystems throughout the world are under siege by a growing number of harmful invasive species - destructive insects, animals, and weeds that threaten economic productivity, ecological stability, and biodiversity. On military lands, they also threaten the integrity of training and testing areas, and the ability to conduct joint training exercises. The brown tree snake on Guam has been of particular concern to DoD's ability to conduct training exercises throughout the Pacific region. The problem of invasive species is growing in severity and geographic extent, as global trade and travel accelerate, and as ecosystems are disrupted by fragmentation and other factors.

The Legacy program has been supporting control efforts on the brown tree snake since 1992. An ongoing project, led by the National Wildlife Research Center, is evaluating and field testing chemical control methods and applied management strategies to resolve problems caused by the brown tree snake. Work continues on developing and field testing attractants, repellents, and dermal toxicants. A new initiative planned for fiscal year 1999 will investigate ways to inhibit the snake's reproductive ability.

Legacy has also sponsored efforts to control invasive weed species. A CD-ROM based Noxious and Nuisance Plant Management Information System currently contains detailed information on 61 species. Additional information will be added in 1999. Legacy is also sponsoring a DoD partnership with the National Fish and Wildlife Foundation's Pulling Together Initiative. This effort, begun in 1998, helps military installations participate in regional efforts to control invasive weed species.

Recent Initiatives to Enhance Resource Planning on Military Installations

Two related Legacy projects are designed to improve the DoD's preparation and implementation of integrated natural and cultural resources management plans. The first project is looking at how INRMPs are prepared on three installations with quite different management capabilities - the U.S. Air Force Academy, Colorado; NSWC China Lake, California; and Pohakuloa Training Area, Hawaii. The project is focused on determining how projects are implemented at base level; how partnerships are formed; and how obstacles to implementation are overcome. The second project is developing a prototype model for an integrated cultural resources management plan, and then testing that model at Fort Bragg, North Carolina. The results of both projects will be widely available for use by other installations.

RECENT CONSERVATION CHALLENGES

Elimination of the Integrated Training Area Management (ITAM) Program

The Army developed the ITAM program in the mid-1980s to ensure sustained use of military lands in support of readiness training. The ITAM program has balanced the demands of training activities with the ability of the land to absorb, and recover from, the impact of military training. ITAM has monitored trends in the condition of soils, vegetation, and sensitive resources to help military trainers determine land carrying capacity and frequency of training use. ITAM also has focused on training military personnel on environmental issues such as sensitive ecological areas or endangered species located in their training areas. Often, this training occurs right in the field. ITAM has enabled the Army to meld training and testing requirements with the application of sound principles of land management on more than 60 Army installations. The program has increased the realism of training, minimized environmental degradation, reduced expenditures for compliance and restoration, and increased military readiness.

In fiscal year 1995, the Army formally transferred responsibility for the ITAM program from its environmental office to the Office of the Deputy Chief of Staff of the Army for Operations and Plans. The Army felt that the training community should be responsible for the maintenance of their training lands, and that this action would allow management of natural resources to be more fully integrated into Army training activities.

Yet despite ITAM's proven success, the Army has decided to eliminate central funding for ITAM effective in fiscal year 2000. This decision was apparently made to satisfy short-term funding needs. If not reversed, the elimination of ITAM will have severe and unavoidable long-term adverse consequences for the Army's continued ability to use their training and testing lands to maximum sustained use. Although some Army installations will undoubtedly find other sources to fund much of the work currently being done by ITAM, other bases will be less fortunate. The visibility and clout of a strong central conservation message will be blunted. The on-the-ground practical expertise of ITAM practitioners will be lost, as will years of trend data of soil and vegetation conditions from monitoring stations. Soil and vegetation conditions will inevitably begin to decline if rehabilitation and restoration work undertaken through ITAM's Land Rehabilitation and Management component ceases or is performed on an irregular basis. This will result in more costly repairs, and the potential

loss of specific areas for training. The Army's decision has drawn significant concern with the Office of the Secretary of Defense. However, as of this writing, it is the Army's intent to proceed as planned.

Downsizing of Professional Natural Resources Management Staff

All federal agencies are experiencing significant personnel cutbacks, and budgets are under increasing scrutiny. Areas perceived as less essential to an agency's core mission are likely to be more severely impacted by downsizing. This trend results in a loss of institutional memory and expertise, and an inability to continue all necessary management actions. DoD installations have not been immune to these trends. Many natural resource management positions have been evaluated to determine whether their functions are "inherently governmental." Those that are not are often being contracted out or eliminated.

With reduced staff, important natural resources projects are simply not being completed. Often the first projects eliminated are those preventative measures that help avoid more complex and costly problems in the future. Comprehensive ecosystem management, including partnership development, coordination, and inclusion of public and agency comments, is likely to be suffer where staff shortages prevail.

SUMMARY

It has been argued elsewhere that natural and cultural resources management has a greater potential for a direct impact on the military mission than any other element of DoD's environmental program. [14] Actions during the past year have resulted in decidedly mixed prospects for the future health of the natural and cultural resources on DoD lands. In particular, the elimination of ITAM will have severe and unavoidable long-term adverse consequences for the Army's continued ability to use their training and testing lands to maximum sustained use. It will take continued progress through such initiatives as implementing the Sikes Act Improvement Amendments and continuing to fund DoD-wide conservation initiatives through the Legacy program to ensure the continued health of DoD's natural and cultural resources.

NOTES

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[1] DoD Instruction 4715.3, "Environmental Conservation Program." May 3, 1996.

[2] Boice, L. Peter. 1997. "Meeting Current Challenges to DoD's Conservation Program." Federal Facilities Environmental Journal. Spring 1997.

[3]DoD Authorization Act. FY 1998. Sections 2901-2914.

[4] Ibid., Section 2904.

[5] Ibid.,

[6] Ibid., Section 2905.

[7] Ibid., Section 2904.

[8] Memorandum from the Deputy Under Secretary of Defense for Environmental Scruriu to the Military Departments. "Implementation of Sikes Act Improvement Amendments." September 21, 1998.

[9] Ibid.,

[10] DoD Authorization Act, FY 1991, Section 8120. (Public Law 101-511)

[11] DoD Autlrurization Act. FY 1997, Section 2694. (Public Law 104-201)

[12] Boice, Page 33.

[13] Memorandum from the Deputy Under Secretary of Defense for Environmental Security to the Military Departments. "Implementation of Ecosystem Management in the DoD." August 8. 1994.

[14] Boice, L. Peter. "Ecosystem Management in the Department of Defense." In Conservation of Biological

Diversity: A Key to the Restoration of the Chesapeake Bay and Beyond. In press. Provides details of these initiatives.

[15] The Nature Conservancy. "Experts Workshop for the Sonoran Desert Ecoregion." May 1998.

[14] Rubenson, D., M.D. Millot, G. Farnsworth, and J. Aroesty. 1996. More than 25 Million Acres? DoD as a Federal, Natural, and Cultural Resources Manager. RAND, Santa Monica, CA. Page viii.